

GRADE: 4TH-Adult
TIME: 1 Hour
SEASON: All

SURVIVAL: FIRE BUILDING

National Science Teaching Standards

- A.** Science as **INQUIRY**
- D.** **EARTH** Science
- E.** Science **TECHNOLOGY**
- F.** Science in **PERSONAL** and **SOCIAL PERSPECTIVE**

Background Information:

When in a survival situation, maintaining warmth may be the highest priority in staying alive. Many outdoor recreational activities are enhanced when a fire is built (i.e. camping, picnics, hiking). Thus, a basic knowledge of fire building can save lives or add to your enjoyment of the outdoors.

Objective

Students will learn the correct procedures for fire building: how to prepare a fire; differences between tinder, kindling, and firewood and different types of fires.

Pre Activity:

- Have the Boy Scouts and/or Girl Scouts in your class share what they have learned about fire building. Also, invite his/her scout leaders to come and join in the discussion.
- Invite an Eagle Scout to visit your classroom to discuss survival in the wilderness and his/her survival camping and fire building experiences.

Equipment

- matches
- knife (optional)
- water container (for putting out the fire)
- steel wool (000 grade - optional)
- 9-Volt battery

Procedure

1. Discuss with the students the idea of **survival** fire building. What does it mean and how is it different from campfire building?
2. Discuss the importance of proper preparation before getting a fire started. All materials should be gathered before one even attempts to light the match. First, tinder needs to be gathered which catches the fire from the match and gets it going. Possible sources of tinder include: lint scraped from clothing; cattail, thistle and milkweed down; dried leaves and grasses; dried fiber from mullein stalks, paper and

small brittle dead limbs (use knife to cut dry slivers and chips). A fine grade of steel wool is also excellent for tinder as it will ignite even when wet. It is important that the tinder is dry. In wet weather, the most available tinder is usually the brittle branches from dead limbs. These should be no thicker than the diameter of a pencil lead and will burn even when damp. Select ones that will snap when broken. *Next kindling should be gathered. Kindling is small sticks about the thickness of a pencil and six inches in length. *Finally logs or firewood of various sizes should be gathered.

3. Students should again be working in groups of 2-4. When each group has gathered an ample supply of tinder, kindling and firewood, they are ready to build their fire. *To build a fire, carefully arrange the tinder with the most flammable or easily ignited on the **bottom**, and the nest above, etc. (i.e. down, wood shavings, tiny twigs, larger twigs, larger twigs, and so on). Build a small pile in the shape of a tepee.
4. Now have the groups start their fires. The matches should be protected from the wind during ignition. Blowing lightly on the burning wood helps to increase the flame and the intensity of the heat.
5. The groups should continue to add more fuel to the flame. Fire climbs, so always add new kindling above the flame. While adding more kindling materials, be careful not to overwhelm and smother the fire. Some other tips to keep in mind while building a fire: soft wood and split branches burn more quickly than whole ones.
6. Once the fire gets going, each group could practice building one of the following types of fire: tepee, wheel fire or the log cabin fire or you could demonstrate these techniques:

Tepee: burns quickly with enough heat to boil water and cook one-pot meals. Stake firewood tepee style so that top ends are touching.

Wheel fire: gives moderate heat over a long period of time. Start by forming a depression and place some tinder in it. Start a fire and add a little more tinder. Then add some kindling around the edge until it catches fire. Finally place some larger fuel around the edge of the depression.

Log Cabin fire: an easy fire to build and maintain. Provides a good cooking fire. It is started similarly to the wheel fire but in this method the larger fuel wood is stacked log cabin style around the tinder and kindling tapering inward.

POST ACTIVITIES

- Plan a class picnic where students cook their own meals over a fire. Many camping books provide meals-over-the-fire recipes. Camping cookbooks should be available in the local library for meal ideas.
- Fire building can be dangerous if not done properly with an eye on safety. Have students design fire safety posters. Some ideas to consider include: *Don't engage in horseplay around fire. *Never leave fires unattended. *Always put fires out cold. *Make sure your fire is contained properly (i.e. line fire area with rocks). *Keep flammable objects and liquids away from fire. Display them or even have a poster contest.

Post Discussion:

- When may a survival fire be necessary?

- Discuss safety and responsibility of building and putting a fire out.
- Discuss safety of fires in fireplaces, wood burning stoves, barbecue grills, cook stoves and ovens, and microwave ovens used in their homes.